



GPS Camera Equipment

Setup and Operations



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Introduction

This Powerpoint presentation is designed to instruct you on how to setup and operate the Garmin GPS Digital Camera systems. It will cover Zio!, MapSource, GPS-Photo Link softwares, the MBX-3 differential receiver, Garmin GPS receiver and the Kodak DC 5000 camera.

It is not designed to be all inclusive and some assumptions are made as to the basic knowledge of the user concerning PC and GPS operations. If you would like more specific information, please, feel free to contact us at the NPS GPS Support Facility.

Tim Smith, GPS Coordinator
National Park Service



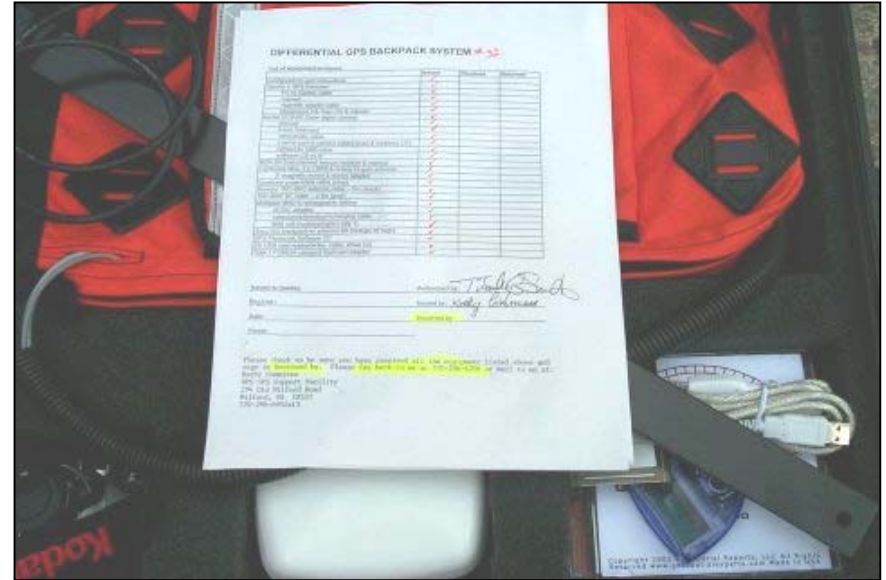
Instructions for Setting Up the CSI MBX-3 Beacon and Garmin GPS V Receivers



Setting Up the MBX-3 Differential Beacon Receiver



Open the case



Take out the equipment checklist and, carefully, check that you have received all the equipment.

Setting Up the MBX-3 Differential Beacon Receiver

Equipment List

DIFFERENTIAL GPS BACKPACK SYSTEM

List of equipment enclosed:

	Issued	Received	Returned
Configurations and Instructions			
Garmin V GPS Receiver:			
PC to Garmin cable			
manual			
cigarette adapter cable			
Mapsource US Topo CD & manual			
Kodak DC5000 Zoom digital camera			
Manual			
64mb flashcard			
video/audio cable			
2 serial port to camera cables (mac & windows OS)			
camera to USB cable			
software CD v1.0			
MBX-3S Dual channel beacon receiver & manual			
Combined MGL-3 L1 GPS & H-field Hi-gain antenna			
3" magnetic mount & survey adapter			
Quadcom power/data cable (blue)			
Remote TNC-BNC antenna cable – 5m (black)			
TNC-BNC RF cable – 2.5m (grey)			
Multiplier M5010 rechargeable battery			
AC/DC adapter			
extension/eliminator/recharging cable			
M/M null modem adapters (qty 1)			
Seco GIS backpack w/ antenna bar (orange w/ logo)			
GPS PhotoLink Software CD			
Zio USB card reader/writer, cable, driver CD			
Type 1 PCMCIA compact flashcard adapter			

Issued to (name):

Authorized by:

Region:

Issued by:

Date:

Received by:

Phone:

Setting Up the MBX-3 Differential Beacon Receiver



Take the antenna bar out of the case.



Slide bar into the pocket on the left side of the pack. Be sure that the angle at the top of the bar is pointing inward.

Setting Up the MBX-3 Differential Beacon Receiver



Hold the velcro tab in your fingers as you slide the bar down.



Put the velcro through the slot close to the top of the bar to secure the bar in place.

Setting Up the MBX-3 Differential Beacon Receiver



Screw the MGL-3 GPS/Beacon antenna on the top of the antenna bar.

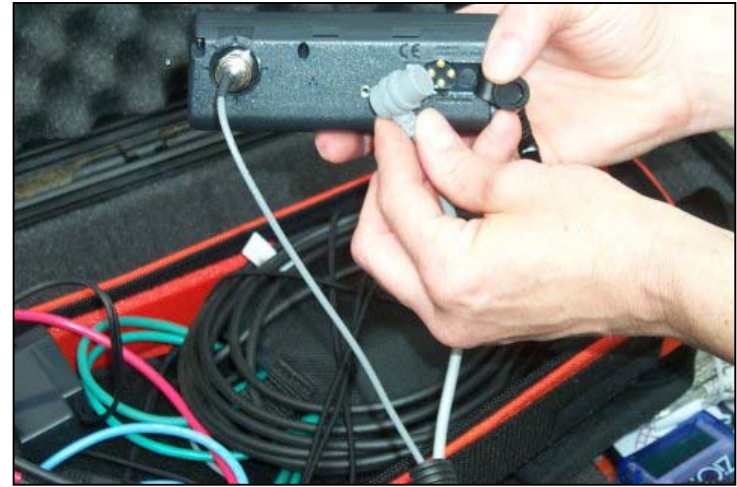


Wind the antenna cable around the bar and screw the cable on to the antenna

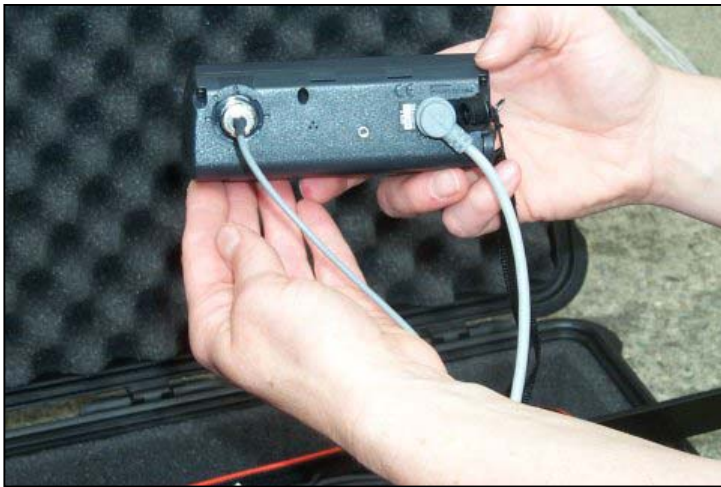
Setting Up the MBX-3 Differential Beacon Receiver



Attach the gray antenna cable to the Garmin GPS receiver



Attach the gray power/data cable to the Garmin GPS receiver

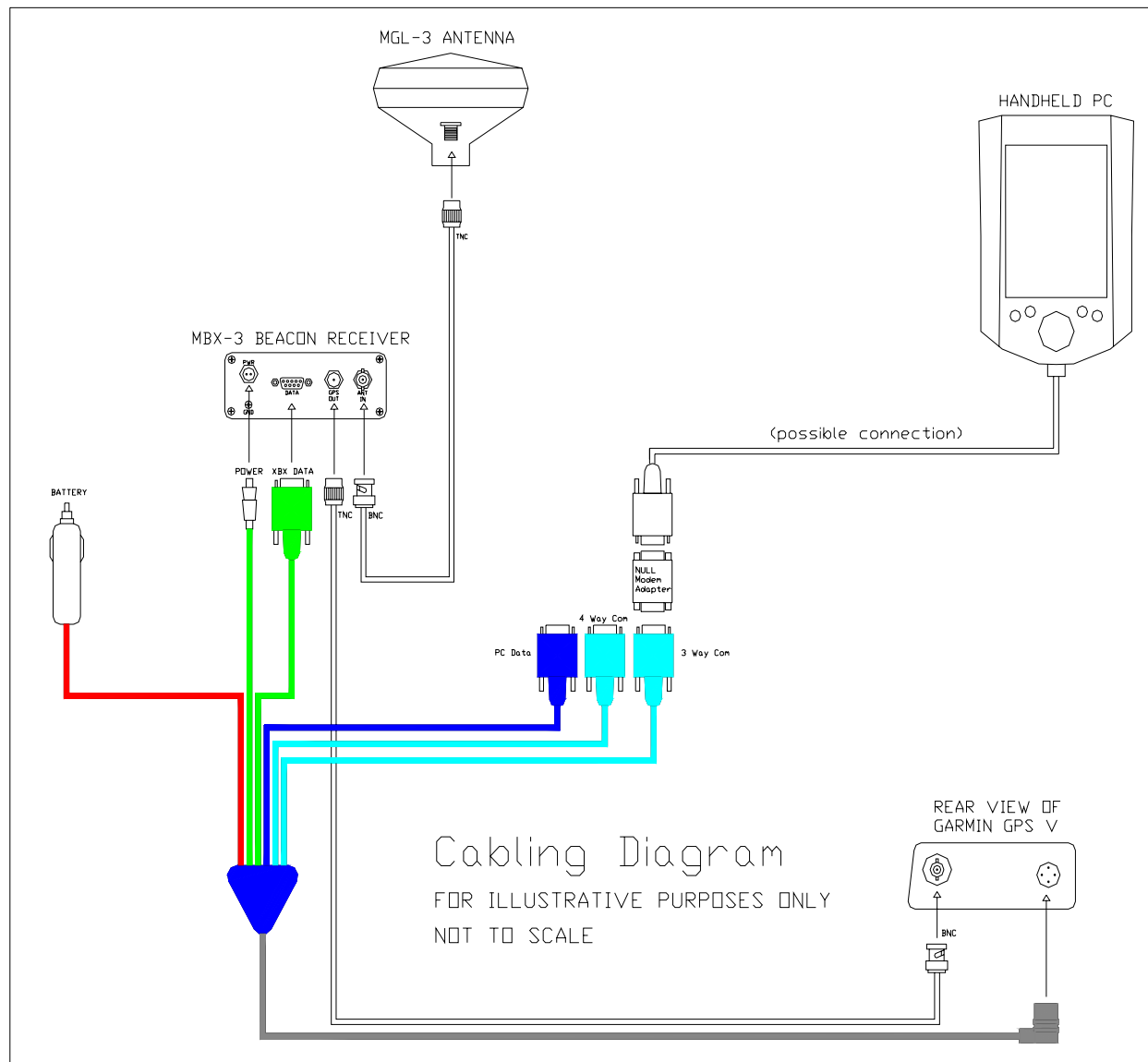


The cables should look like this when connected properly. Do not force the connection.



Plug in power cable to battery

Setting Up the MBX-3 Differential Beacon Receiver



Setting Up the MBX-3 Differential Beacon Receiver



Front panel view of MBX-3 beacon receiver.



Push the "e" or ENTER button to pick the top line option and begin the NDGPS beacon selection.

Setting Up the MBX-3 Differential Beacon Receiver



“Select Beacon” option window



Push the “e” or ENTER button to pick the top line option

Setting Up the MBX-3 Differential Beacon Receiver



**Push Up and Down arrows until
“North America” is on the top line.
Push the “e” button to ENTER.**



**Push Up and Down arrows and select
“U.S.A.”**

Setting Up the MBX-3 Differential Beacon Receiver



Push Up and Down arrows and select closest beacon



Push the “e” button to ENTER and the receiver will tune to the selected beacon.

Setting Up the MBX-3 Differential Beacon Receiver



New NDGPS sites are coming online all the time. If you know of a closer station to you than the ones in the picklist on the receiver you may select the frequency and bit rate for that site by pushing the “e” button



You can change the frequency and bit rate by scroll through the selections using the arrow keys. When you have the frequency and bit rate displayed push the “e” to set the option.

Setting Up the MBX-3 Differential Beacon Receiver

You can get the latest status of the NDGPS system, the frequency and bit rate for the stations, etc. from the Coast Guard website at:

<http://www.navcen.uscg.gov/ADO/DgpsSelectStatustxt.asp>

Note: All of the available NDGPS sites are not on the pick list in the MBX-3 receiver since new ones are coming on line all of the time. The frequency and bit rate will have to be hand-keyed into the receiver for these stations.

Setting Up the GPS Receiver Interface for Communications



When the chest and waist strap are attached the differential pack will fit close and tight to your body.



The antenna will be close to your head and stay there when bending over to avoid branches, etc.

The camera is independent from the DGPS system so that one person can take the photos while another collects the GPS positions.

Setting Up the GPS Receiver Interface for Communications



Push the **POWER** button.



Push the **ENTER** button twice.



Push the **MENU** button twice.



Push the **TOGGLE** button to move to the “Setup” option.



Push the **ENTER** button.

Setting Up the GPS Receiver Interface for Communications



Push the TOGGLE button on the right side to move across the tabs to “Interface”.



Push the TOGGLE button on the bottom to move down to the “Format” option.



Press the ENTER button



Push the TOGGLE button down to select “RTCM” for realtime differential corrections and “Garmin” when in the office downloading the GPS receiver into software.



Press the ENTER button to enter your selection.

Setting Up the GPS Receiver Interface for Communications



Push the TOGGLE button on the top to move up to the tabs.



Push the TOGGLE button on the left side to move down to the "Time" tab.

Push the TOGGLE button down to select "Time Zone".
Push ENTER and pick the proper time zone for your area.
Push ENTER

**** It is important to set the time zone on your GPS and the time/date on the camera to close to this time since you will using local time for your digital photo attribute. You do not need to set the time or date. This will be updated by the satellites if needed.**

Setting Up the GPS Receiver Interface for Communications



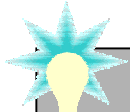
Pick the QUIT button twice and return to the status page.



Be sure that the estimated accuracy is less than or equal to 40 ft. or 12 m. so that NMAS (National Map Accuracy Standards) for 1:24,000 scale maps will be met.

If you are receiving differential corrections from the beacon you should see a “D” in the signal strength bars for the individual satellites.

Setting Up the GPS Receiver Interface for Communications



Tip: if you are working in wide open sky you might be able to use the WAAS (Wide Area Augmentation System) satellite to get your differential corrections. The Garmin GPS V can use this method if you have a clear view of the southern sky. You will not need the MBX-3 pack if you are using the WAAS signal just the GPS receiver with the antenna attached and the camera. You must enable WAAS in the receiver setup. Disable this when using the differential pack.



Kodak DC5000 Digital Camera

Setup and Operation



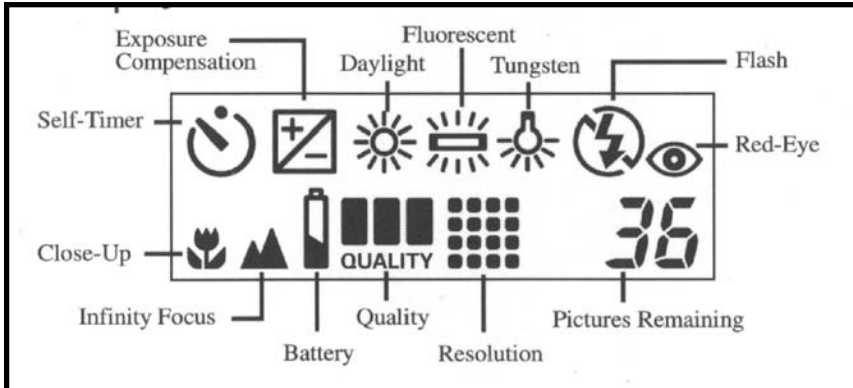
CAMERA OVERVIEW

camera back



CAMERA OVERVIEW

camera top



CAMERA SET UP



Installing Batteries

Open the battery door and install 4 AA batteries.



Accessing the camera memory card (compact flashcard)

Open camera card door, fold white tab out and press in. This will eject the compact flashcard. Insert compact flashcard only one way - DO NOT FORCE. Fold white tab in and close door.

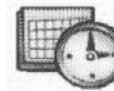
TIP: Do not access the compact flashcard until the light above the door stops flashing. If you do, your picture files will be corrupt!



Setting the clock and date

Set the mode dial to Setup and turn camera on.

Scroll up/down to select



Press enter (DO-IT) button.

Scroll left/right to adjust date and time fields.

Press enter (DO-IT) button to enter the changes.

**** This is very important. This is the date/time which is used to synchronize with the GPS receiver.**

PICTURE TAKING OPTIONS

Adding Date Stamp



Set Mode dial to Capture. Press Menu button. Use up/down to select icon. Press enter. Use up/down to select “off”. The GPS-Photo Link software will place the watermarks. Press enter.



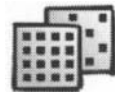
Quality Settings



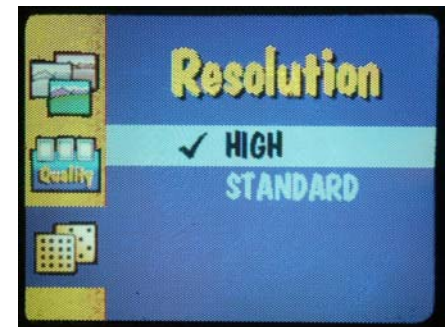
Select Press Menu, use up/down to select icon. Press enter. Use up/down to select “Best”. Press enter.



Resolution Options



Press Menu, use up/down to select icon. Press enter. Use up/down to select “High”. Press enter.



** The quality settings and resolution options are extremely important. They will effect the quality of the photo and the number you can take before the 64MB flashcard fills up.

REVIEWING YOUR PICTURES

Set Mode dial to Review. Press Menu button. Use left/right to scroll through the pictures . Use left/right to scroll through picture.

Magnifying Pictures



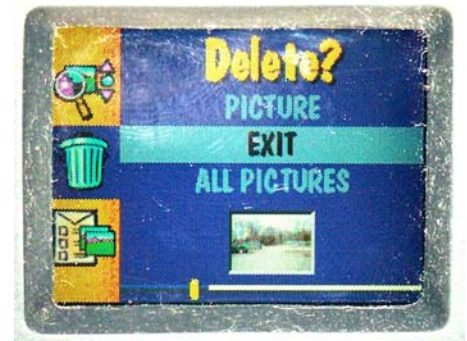
Set Mode dial to Review. Press Menu button. Use up/down to select the magnify icon. Use left/right to scroll through the pictures. Press enter to magnify the selected picture. Press enter. Use left/right to scroll through picture and press enter when done.



Deleting Pictures



Set Mode dial to Review. Press Menu button. Use up/down to select trash can icon. Press enter. Use up/down to make selection. Press enter.



Zio! – Installing Compact Flashcard Drivers



INSTALLING COMPACT FLASHCARD READER DRIVERS

**** You must install the driver software prior to connecting the ZiO! Compact flashcard reader to your USB port on your computer. This is very important.**

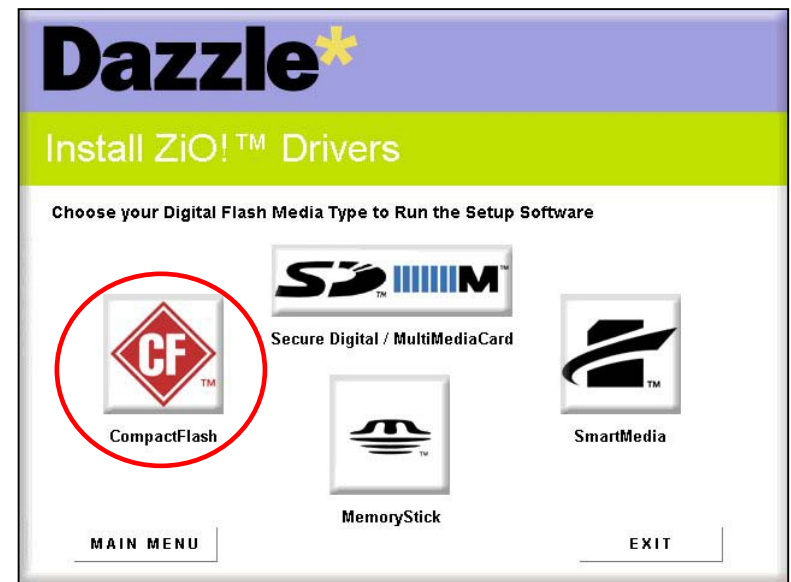
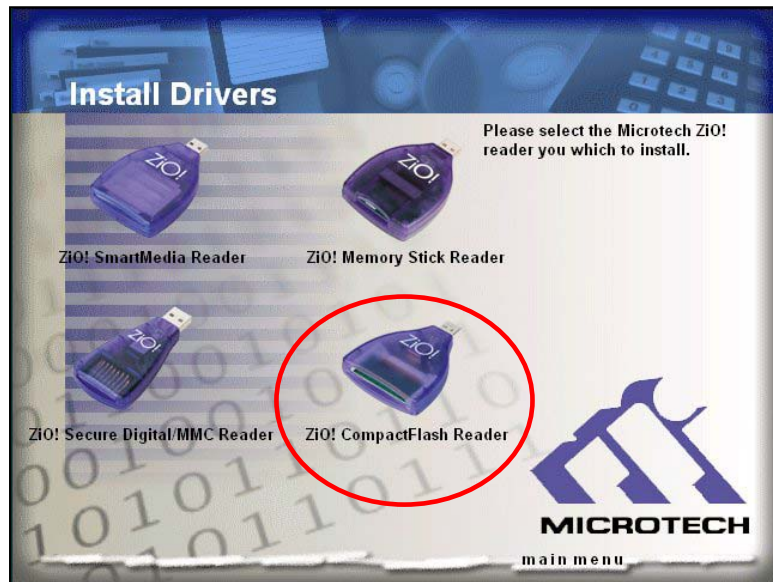
This device will work with the following operating systems: Windows 98, Windows 2000 and Windows XP. It will not work with Windows NT systems.

The installation procedure is the same for both Dazzle and Microtech manufactures of the ZiO!

1. Insert the CD for the driver into your computer. Set up should start automatically. From the set up screen (see below), choose “Install Drivers”.



2. Choose the CompactFlash driver to be installed. The CD setup instructions that follow on your computer from this point are very straight forward and should be followed. After set up is complete, connect the ZiO reader directly to your computer USB port. There is a cable extension the ZiO connects to if needed.





The compact flashcard can be used in laptops using the PCMCIA flashcard adapter included.



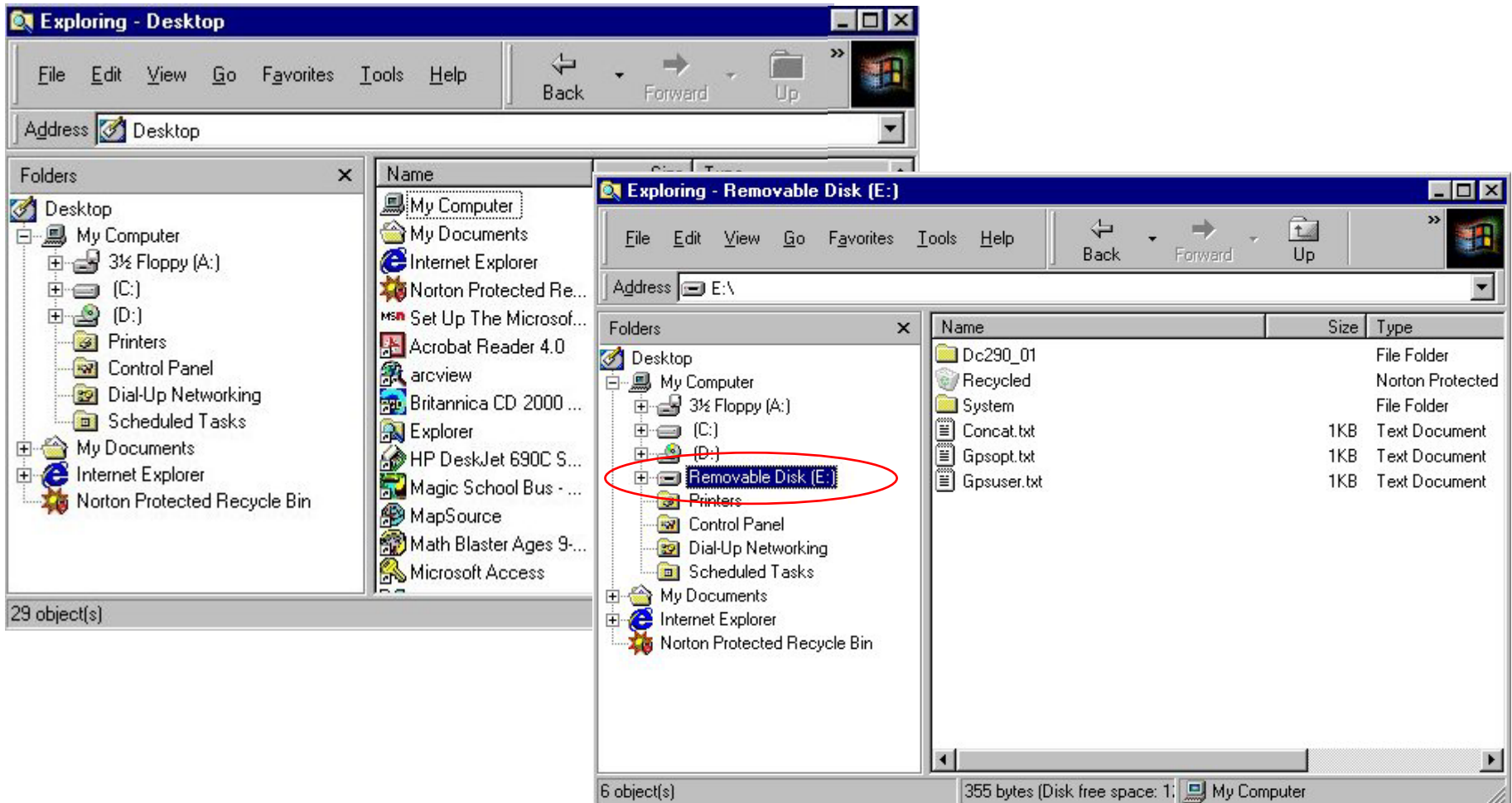
Insert the flashcard into the adapter



Insert the adapter into the laptop

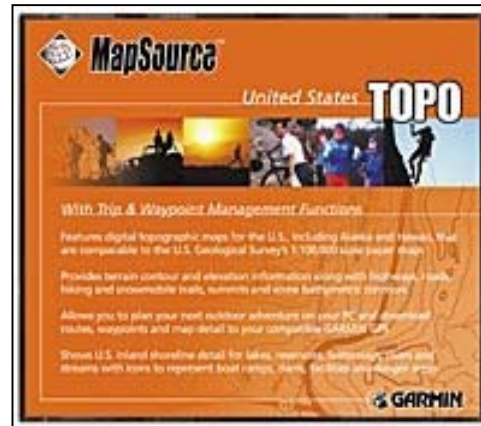


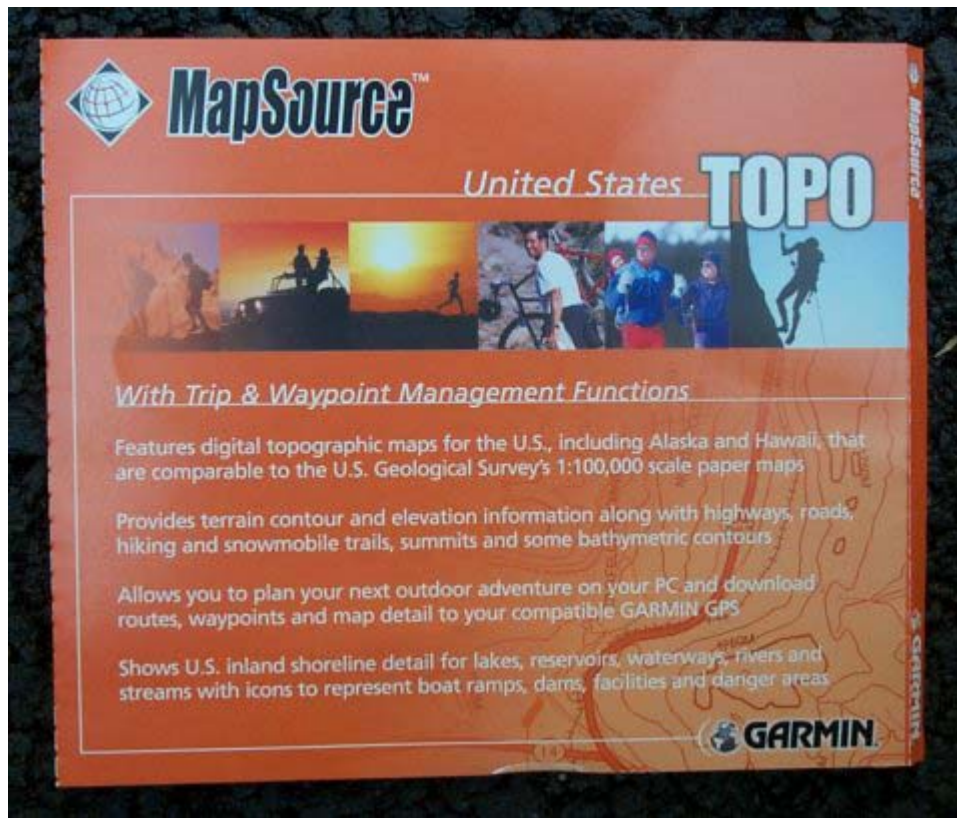
Open up Explorer and you should see a drive assigned to the flashcard whether you used the ZiO or the PCMCIA Adapter. The corresponding information on the flashcard can now be copied, deleted or renamed like all files on your regular drives.



MapSource Software

Setup and Operations



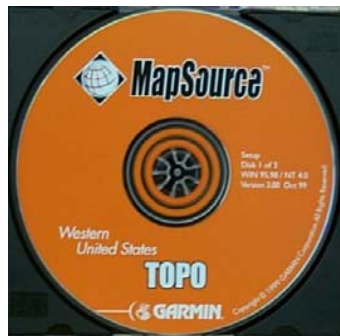


MapSource Topo

All three CD's are necessary to install the program. After that, all you need is the CD covering your geographic area.

Insert Disk 1 (Western United States) into CD Rom; set up will automatically start.

Follow the on screen directions, inserting Disk 2 (Eastern United States) then Disk 3 (Alaska & Hawaii) when prompted.



Disk 1
Western United States



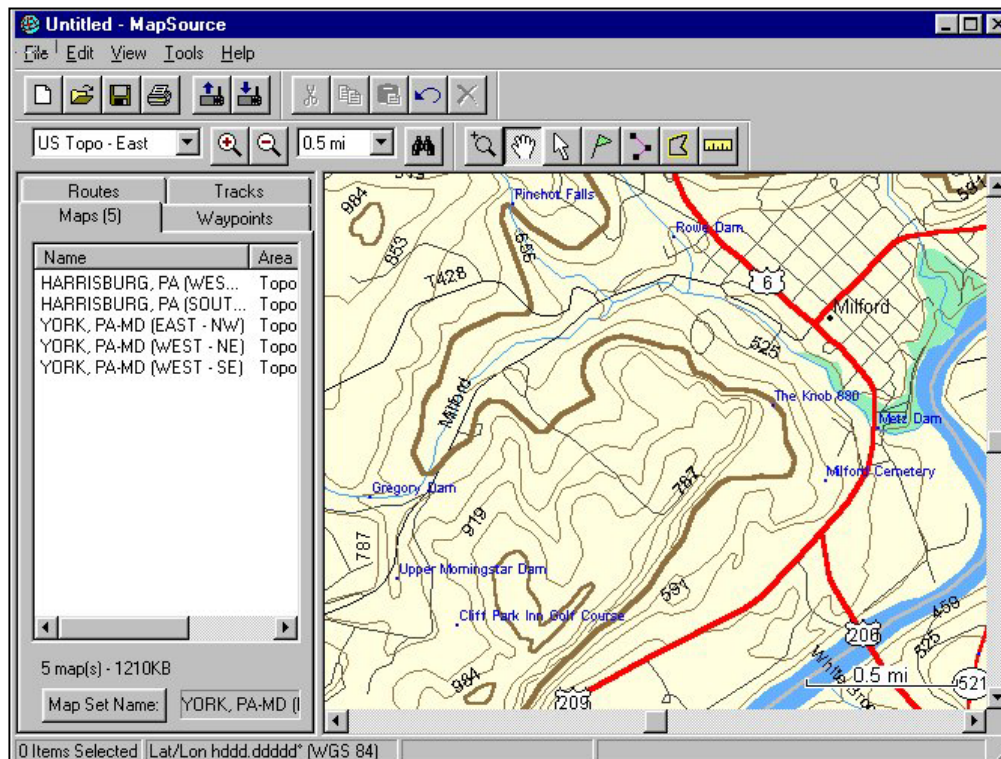
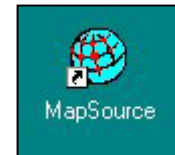
Disk 2
Eastern United States



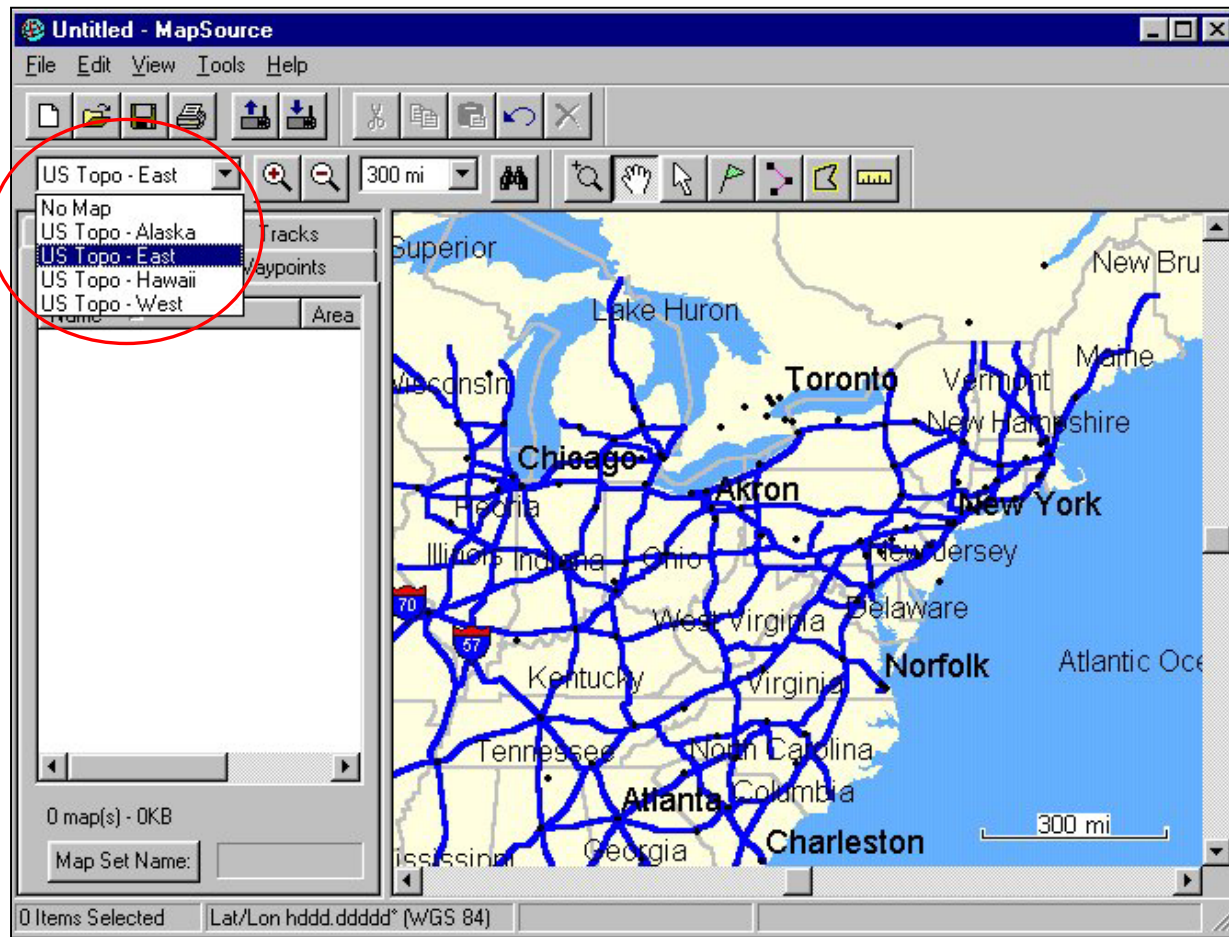
Disk 3
Alaska & Hawaii
United States

You will use the MapSource Topo program to upload USGS 1:100,000 Topographic maps to the Garmin V GPS unit. The Garmin V can hold up to 19mb of map information. These maps contain topographic detail unavailable with the onboard base maps. Each map is described in the receiver by name and may be deselected if you choose not to display the map. MapSource can also be used to download waypoints, routes and tracts to and from the Garmin V for use in a Geographic Information System (GIS).

Click the icon on your desktop (added during installation) to start MapSource.

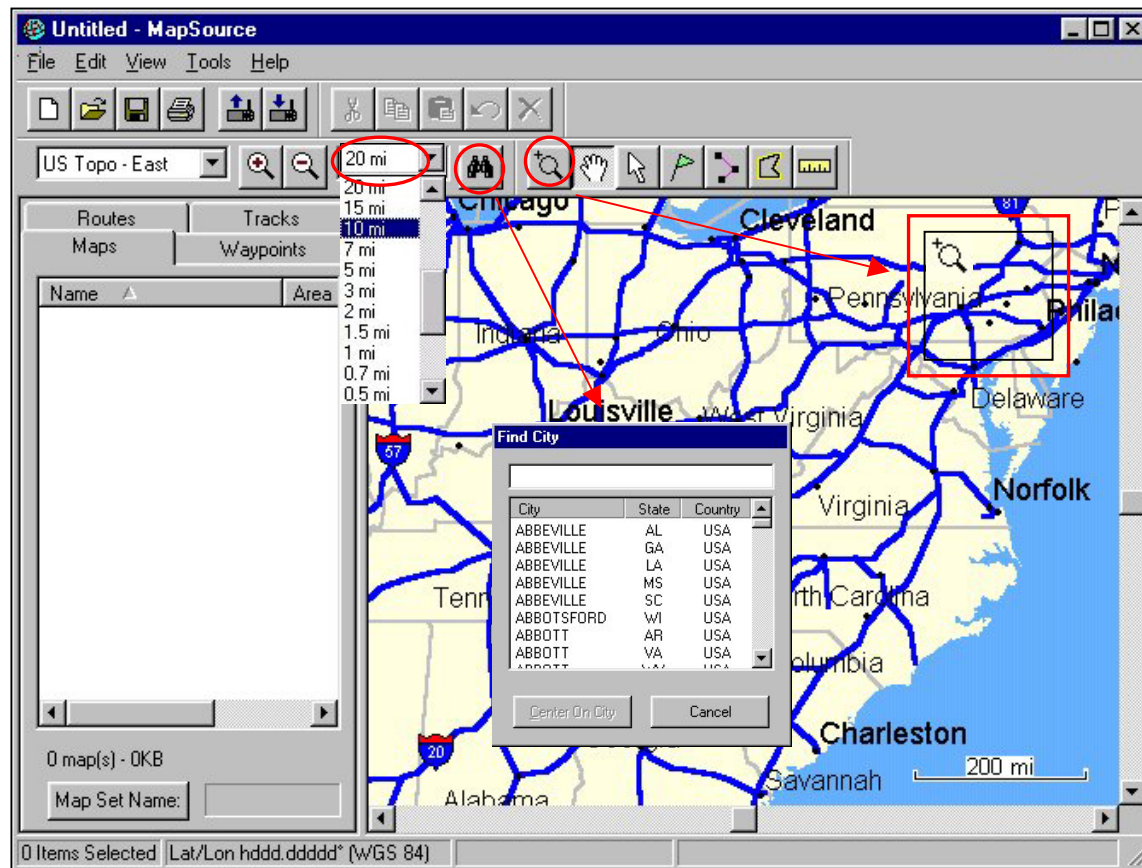


**Insert the appropriate CD covering your geographical area.
You can zoom to that CD by using the pull down menu and
selecting the CD you inserted.**



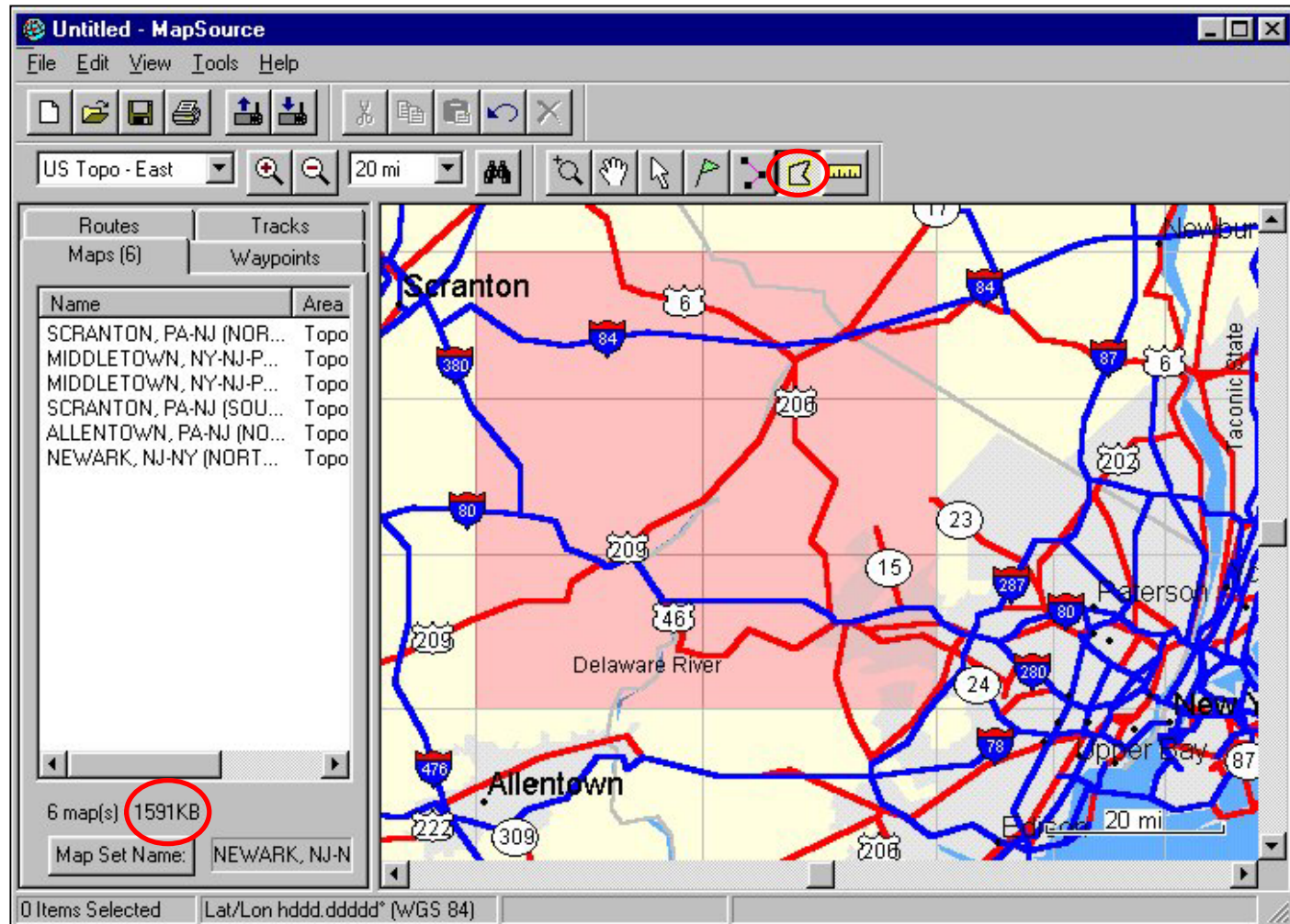
ZOOMING INTO THE AREA OF INTEREST

Click on the binoculars to zoom to the center of a city you select. Or use the pull down to zoom to the extent desired. Or use the Zoom Tool to draw a box around an area of interest. To do this, left click and hold to draw the box, releasing the mouse button when the box is drawn.



SELECTING MAPS FOR UPLOADING

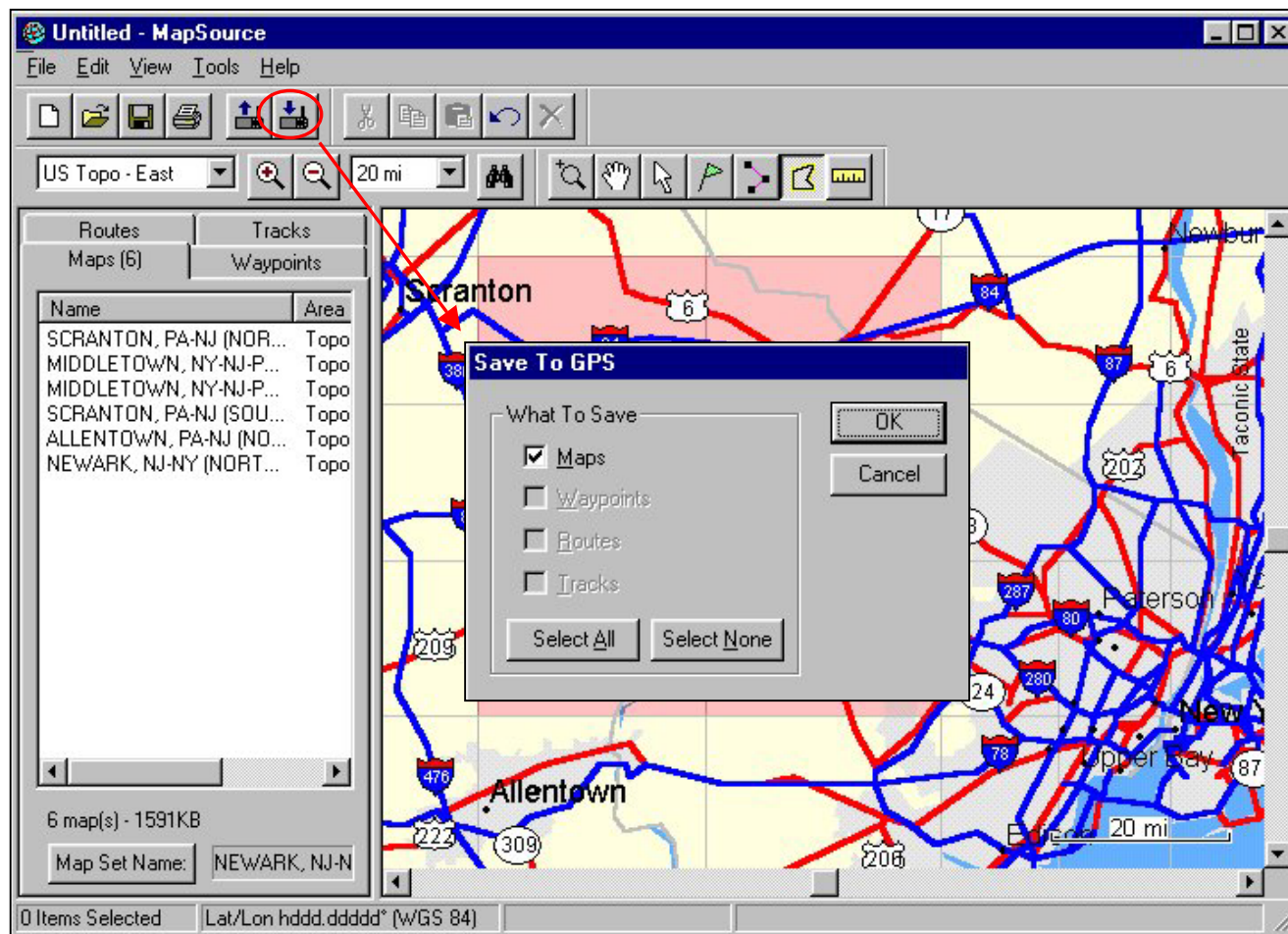
Get the Add/Remove Map Tool and click on the maps desired for uploading. Click again on the map will remove it from the list. The size of the entire map objects is listed at the bottom of the screen. The Garmin can hold up to 19mb (19,000KB).



UPLOADING MAPS

Attach the PC data cable to the com port on the back of the computer and attach the Garmin to the data cable. It is grooved and attaches only one way. Do not force the connection. Click on “Save to GPS” button. Check “Maps” in the What to Save section and click “OK”. The upload should take a few minutes.

**** Any Map Source maps that are already loaded on the Garmin will be erased when the new set of maps is uploaded so reload any of the maps plus your new ones.**



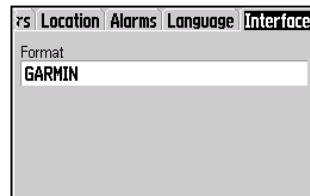
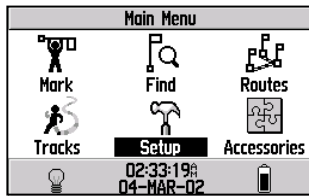
Common problems with uploading maps



The GPS's Interface option is set to GARMIN or Host mode....

1. Set the Garmin to host mode:

Press: Menu, Menu, Scroll down and over to Setup, Enter, Scroll over to Interface, Scroll down to Format, Enter, select "Garmin", Enter.



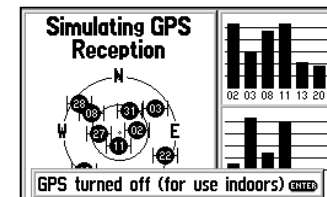
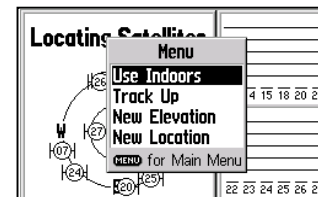
The cable is connected to the correct serial port....

2. Check to be sure the PC data cable is connected to the communications port on your computer.

The GPS is turned on....

3. Be sure the Garmin is turned on. Try turning on the Garmin before starting MapSource.

Put the garmin on use indoors by Menu, Scroll to Use Indoors, Enter



Garmin Waypoint Data Collection

Recommended



Garmin Waypoint Data Collection



Push the **POWER** button.



You will see signal strength bars appear for each satellite tracked.



Push the **ENTER** button twice.

Garmin Waypoint Data Collection



The unit will begin to use either the WAAS satellite or the NDGPS Differential Beacon to acquire real-time differential corrections.

Hint: Look for the small “D” in the signal strength bars.

You should have little “D”s in *all* of the bars and try to have a good estimated accuracy that meets National Map Accuracy Standards. This will be 40 ft. or 12 meters. If you do not have quite the accuracy that you need, don’t worry too much at this point. We will, hopefully, get the required accuracy through averaging of your position during waypoint data collection.

Garmin Waypoint Data Collection



Your receiver may flip over to the Map screen after it acquires a lock on enough satellites.



Push the PAGE button twice to get back to the satellite page if you need to.



Push the MENU button twice to get to the main menu.

Hint: You can do this from any page.

Garmin Waypoint Data Collection



Push and **HOLD** the ENTER button to “Mark” the location.



Push the MENU button to get to the options menu.

Hint: You can do this from any page.

Garmin Waypoint Data Collection



Push the ENTER button to “Average” the position.



Push the ENTER button to “Save” when the appropriate accuracy is met.

Hint: This will be less than 40 ft. (12 m) or the accuracy estimate is no longer decreasing.

Garmin Waypoint Data Collection

** This is the preferred method of position data collection*

Some thoughts concerning waypoint use for photo points:

- **500 waypoints** available for photo points. There is no need to worry about filling up the memory as when using the tracklog.
- **Average waypoints** to get a much better positional accuracy for your photo points.
- **Photo points have to be taken at least 1 minute apart** in order for the correct position to be associated with your photo.
- **Take the position before you take the photo.** You will be able to use the “before” option in the processing software.

Garmin Tracklog Data Collection

Not recommended for FMSS photo data collection



Garmin Tracklog Data Collection



Push the POWER button.



Push the ENTER button twice.



Push the MENU button twice.



Push the TOGGLE button to move to the “Tracks” option.



Push the ENTER button.



Push the MENU button

Garmin Tracklog Data Collection



Push the ENTER button to enter the tracklog setup.



Push the TOGGLE button to move to the “Record Interval” option. Put it on “Time”. Toggle down to the “Value” option and set the time interval. This should be set for 2-10 seconds. 5 seconds is a good compromise for data collection. The camera software will interpolate between positions if you take a photo between track points.



Use TOGGLE button to move to “OK” And push the ENTER button.

Garmin Tracklog Data Collection



Use the TOGGLE button to move up to the ON | OFF buttons and press the ENTER button to push the OFF button. Toggle down to the “Clear” button.

You will come back to this screen to begin tracklog data collection by toggling up to ON | OFF buttons, highlighting the ON option and pressing the ENTER button.



Push the ENTER button to clear the active tracklog.

**** Never save the tracklog. This will degrade it beyond being useable for our purposes. Use only the Active Track.**

Garmin Tracklog Data Collection

A Few Important Points About Tracklog Data Collection

- Collect a tracklog at all times while you are taking photos. You do not need to collect a tracklog when you take the Time-Sync photo of the front of the GPS unit. See [Taking GPS Photos](#).
- If you want to take a photo inside a building you can either stop the tracklog before you enter the building and start it again once you exit the building or you can leave the GPS unit outside while you go into the structure and take your photos.
- It is advantageous to have two people data collecting. One writing down attribute information, taking the photos and the other person collecting the GPS positions.
- Write down the GPS time and the serial numbers of the camera and the GPS unit that you are using.
- Be sure to set camera time using GPS receiver local time. This should be the local time.
- Don't forget to erase the tracklog memory before you begin data collection.
- You may turn the GPS receiver tracklog on and off to save on memory and turn the receiver off to save battery. The GPS V can collect **3000 tracklog points** so use them wisely. If you collect a position every 5 seconds that is **more than 4 hours** of continuous data collection time.

Taking GPS Photos



Taking GPS Photos

First shot of the day should be of the front of the GPS receiver with the time / date showing. This is referred to as the “Time-Sync” photo. Each photo you take with a digital camera is time stamped. GPS-Photo Link will use this photo to calculate the time difference between the camera time and GPS time. Set your camera time and date close to the local time from the front of the GPS unit.



In reality this photo may be taken at any time, including when you come back to the office, but it is a good habit to take this photo at the beginning of your photo session.

Taking GPS Photos

It is recommended that you use waypoint data collection and *not* tracklog.

**** Remember** to record the position *before* you take the photo and that the positions must be at **least 1 minute** apart.



**** It is recommended that the position of the asset be recorded and not the position of the photo ****

Taking GPS Photos

Another way to take photos with the GPS camera system is to take the position of the photo and record the “direction of look”. This can be beneficial for some applications but is *not* recommended for recording positions of park assets.



**GPS position will be photo location.
In this instance, you can watermark
the “direction of look” on the photo.**



Taking GPS Photos



Position in decimal degrees

**** This will be in decimal degrees and UTM's in text and shapefiles.**

**Asset Number (and feature code #)
This is input as the "Photo Comment"
in the GPS-Photo Link software.**



Taking GPS Photos

Output Files



Original File



Watermarked File

GPS-Photo Link Software Operation



**GPS-Photo
Link**

Version 2.1.83 and above



GPS-Photo Link Software Operation



GPS-Photo Link will imprint digital camera photos with watermarks of the coordinates (latitude, longitude, UTM, etc.) of where the photo was taken without physically connecting the camera to the GPS receiver. To achieve this, it matches the timestamp on the photos with the timestamp in the GPS tracklog or waypoint. This software will also allow the user to enter manual photo positions, additional attribute information to be watermarked on the photo, additional information that does not get watermarked and creates a shapefile and comma delimited text file to be used in a Geographic Information System and/or a database.

To load, place CD in PC and follow the onscreen instructions.

After loading and registering software, check website for latest version (<http://www.geospatialexperts.com>)

GPS-Photo Link Software Operation

Registration

Please send an email to Sales@GeoSpatialExperts.com in order to receive the unlock code. There are 10 fully enabled evaluation sessions available for use prior to receiving the unlock code.

GPS-Photo Link - Registration

License Info
Serial Number : 65379795
License Status : **Evaluation**
Evaluation Left : **8 uses left**

License Action
☒ Register
☐ Extend Evaluation
☐ Transfer License to another PC
Unlock Code :
Register

Purchasing
For instant Private or Commercial purchases by credit card on the web
Credit Purchase

For US Government purchases send email with serial number to :
dean@3dllc.com

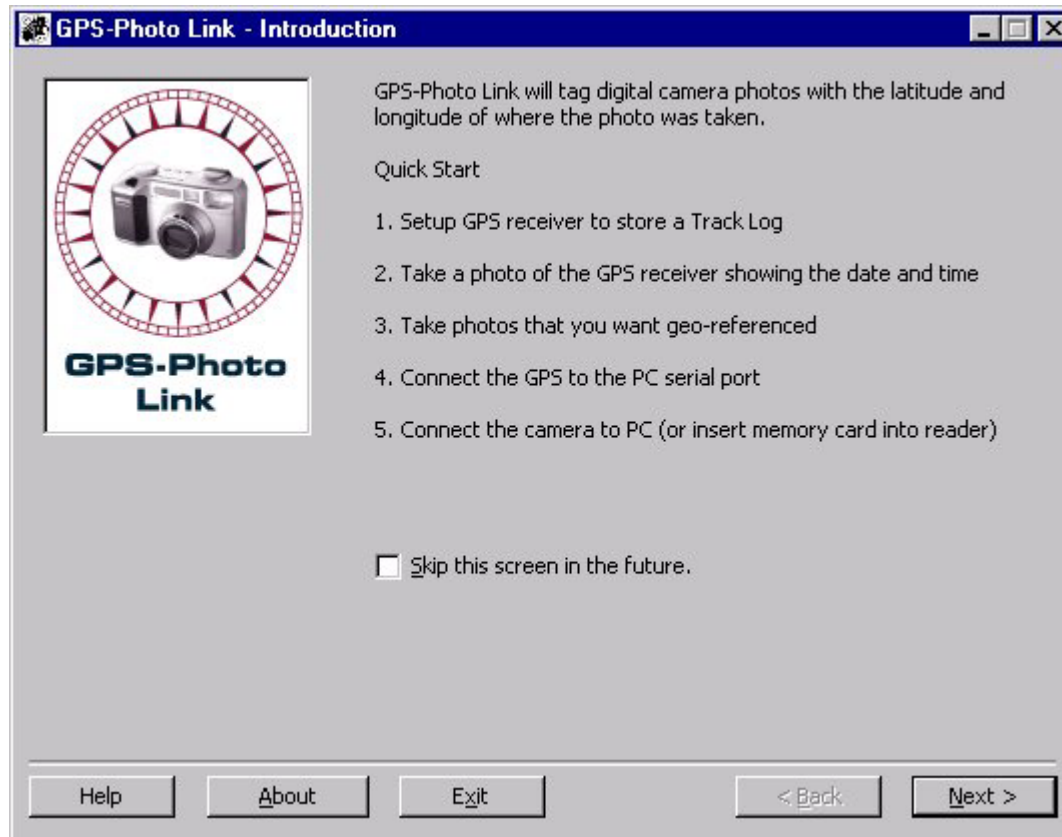
For other purchase options or to obtain an unlock code when purchased, send email with serial number to :
Sales@GeoSpatialExperts.com

Help **Continue**

GPS-Photo Link Software Operation

Introduction

Overview of the steps necessary to process the photos with GPS information. You can check skip this screen in the future if you wish.



GPS-Photo Link Software Operation

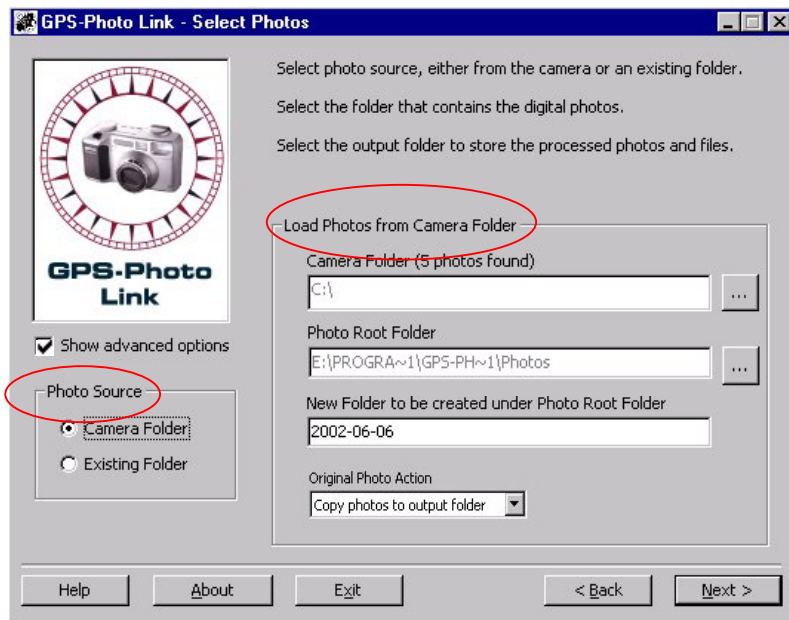
Select Photos

Select the folder where the photos are located. This could be from the compact flashcard connected to your computer or from another folder where the photos are stored.

Photo Source:

Camera Folder - Used to process new photos.

Existing Folder - Used to re-process existing photos.



Load Photos from Camera Folder:

Camera Folder - Select the folder where the photos are located. (input source)

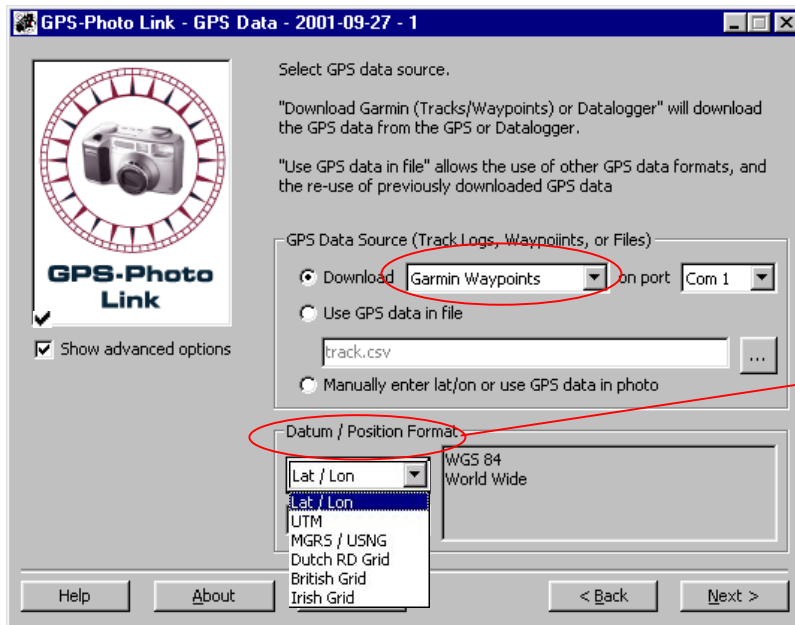
Photo Root Folder - The root folder where new folders are created to hold processed photos. (output folder)

New Folder - Processed files will be located in this folder.

Original Photo Action - Select whether to move or copy the photos to the New Folder.

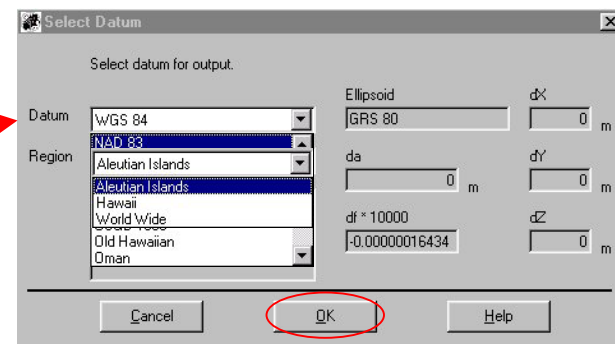
GPS-Photo Link Software Operation

GPS Data



Datum/Position Format

Select Datum will be NAD-83. If you select WGS-84 by accident that is alright. They are basically the same. **Do not use any other datum, including NAD-27.**



Waypoint Download

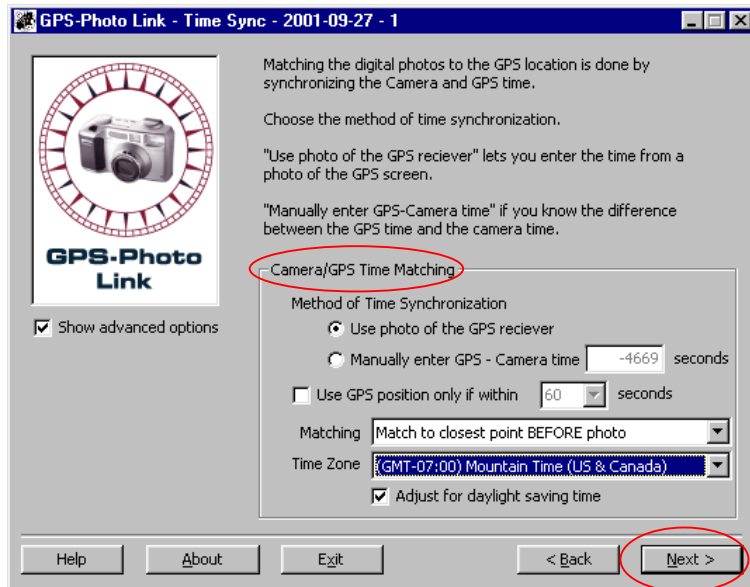
Select either Download from GPS unit with the Com Port, Use a saved log file already downloaded or Manually enter lat/long. If Download from GPS is selected, the data will be downloaded from the GPS receiver when “Next” button is pressed. **Be sure to have the GPS receiver connected to the PC’s serial port, turned on, and in Garmin/Host mode before “Next” is pressed. Additionally, you may need to put the receiver into “Use Indoors” for proper communications to take place. See the GPS receiver manual.**

The coordinate system you wish your output ESRI shapefile to be in is Lat/Long. Lat/Long decimal degrees and UTM will always be added to the attribute file in the selected datum no matter which coordinate system is selected.

GPS-Photo Link Software Operation

Time Sync

Matching the digital photos to the GPS location is accomplished by synchronizing the Camera and GPS time.



Camera/GPS Time Matching

The Method of Time Synchronization will be “Use photo of the GPS receiver”.

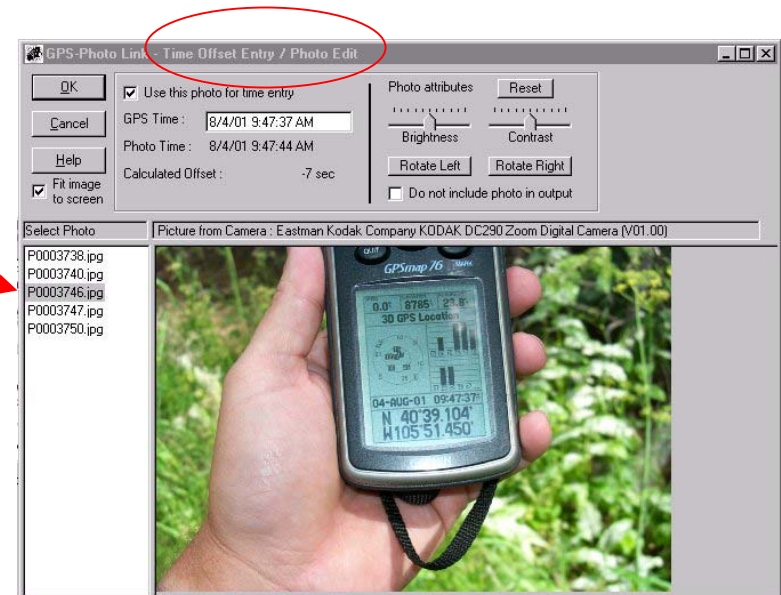
Select “Match to closest point BEFORE photo”

Note – if you are using the tracklog instead of the waypoints you need to select “Match to closest GPS point”

Select the time zone the camera time is set to.

Time Offset Entry/Photo Edit

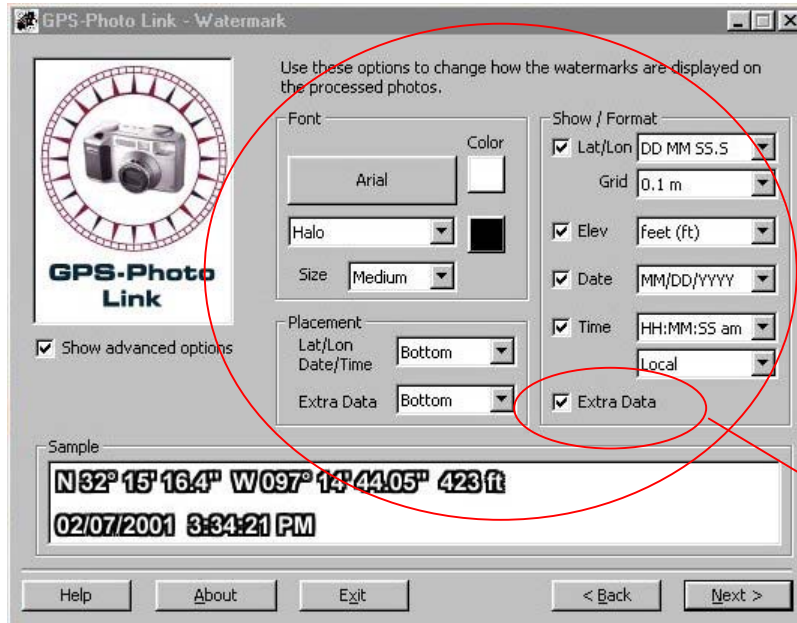
Select the photo of the GPS receiver, and check “Use this photo for time entry”. Enter the time shown in the photo on the GPS unit in the “GPS Time” window. The time difference will automatically be displayed. Select “Do not include photo in output” to skip any photo during processing. Use this screen to adjust brightness, contrast and rotate the photos.



GPS-Photo Link Software Operation

Watermarks

Use this window to set watermark options that are displayed on the processed photos.

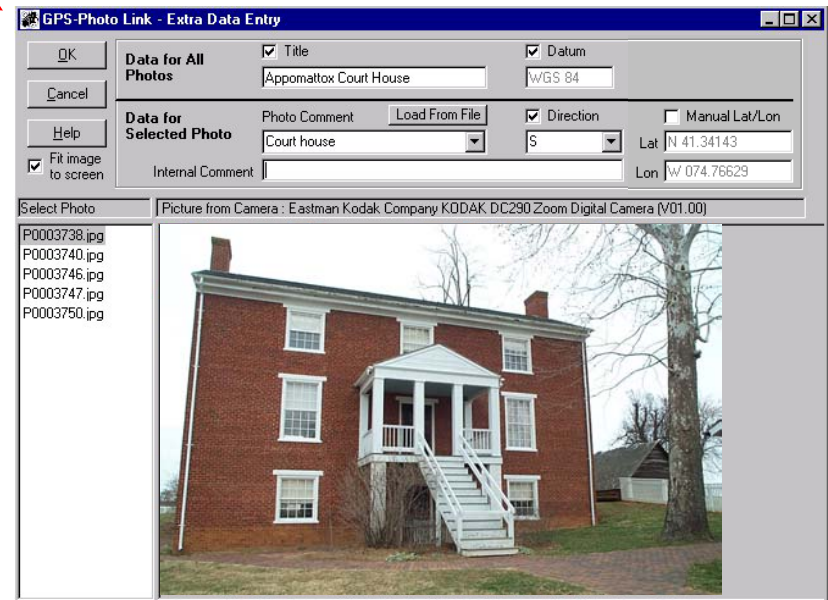


Formatting the Watermarks

Select the font, color, size, placement and format as this example shows. Select extra data to allow additional attributing options on each photo.

Extra Data

Check Extra data to be added. Options include data for all photos, data for selected photos, and an internal comment which will appear in the comma delimited text file and the ESRI shapefile output.



GPS-Photo Link Software Operation

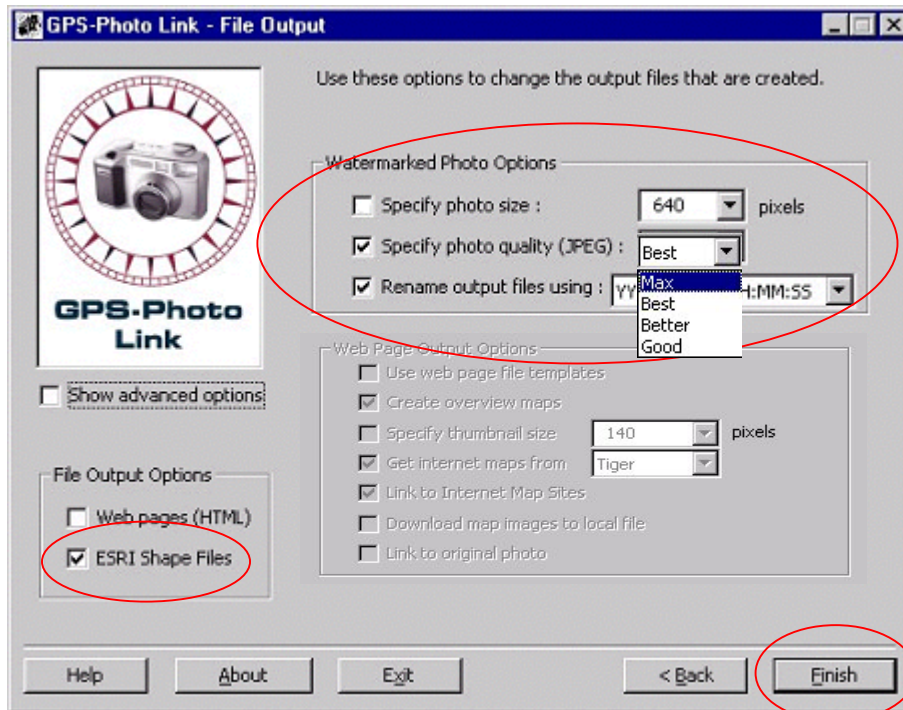
Options in GPS-Photo Link :

1. Data for All Photos (Title) = Park Code
2. Data for Selected Photo (Photo Comment) = Asset Number and Feature Code #
3. Datum should be NAD-83
4. Coordinates should be Lat / Long, decimal degrees.
5. Direction = direction you are facing when you take the photo.
You do not have to enter this, but it is a good idea.
6. Internal Comment = This is a 255 character attribute field.
Please, put common names for assets, buildings, trails and any additional information about the image that makes the image unique. *This is very important.* It will provide key words for a search engine. The completeness of these descriptions will directly impact the ability to key word search for the images.

GPS-Photo Link Software Operation

File Output

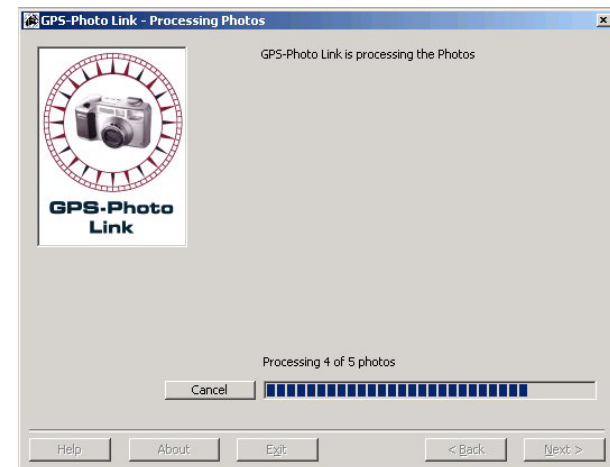
Use these options to change the output files that are created.



- 1) Change the photo quality default “Best” to “Max”.
- 2) Select the format to rename the photos “Orig+MMDDYY_HHMMSS”

Click Finish and the processing starts. Choose “Back” to change any settings.

Check the “ESRI Shape Files” so that they will be created.



GPS-Photo Link Software Operation

Output Files



GPS-Photo Link Software Operation

Output Files

The screenshot shows a Windows Explorer window titled "kjcaa04400883" with the address bar set to "kjcaa04400883". The left pane shows the folder structure, and the right pane shows a list of files. Red arrows point from text labels on the left to specific files in the list:

- Original Image File** points to `DCP_0071.JPG`.
- Watermarked Image File with date and time stamp filename** points to `DCP_0071_022002_170650_tag.jpg`.
- Comma Delimited Text File of Photo Locations** points to `picture.csv`.
- Point Shapefile of Photo Locations** points to `picture.shp`.
- Point Shapefile of Tracklog** points to `track.shp`.

Name	Size	Type	Modified
DCP_0070_022002_170619_tag.jpg	201 KB	JPG File	2/21/2002 12:03 AM
DCP_0071.JPG	191 KB	JPG File	2/20/2002 6:06 PM
DCP_0071_022002_170650_tag.jpg	200 KB	JPG File	2/21/2002 12:03 AM
DCP_0072.JPG	152 KB	JPG File	2/20/2002 6:07 PM
DCP_0072_022002_170745_tag.jpg	161 KB	JPG File	2/21/2002 12:03 AM
DCP_0073.JPG	169 KB	JPG File	2/20/2002 6:07 PM
DCP_0073_022002_170819_tag.jpg	177 KB	JPG File	2/21/2002 12:03 AM
GPS-PHOTO LINK.ini	7 KB	Configuration Settings	2/21/2002 12:00 AM
picture.csv	13 KB	Microsoft Excel Com...	2/21/2002 12:03 AM
picture.dbf	32 KB	Database File	2/21/2002 12:03 AM
picture.prj	1 KB	PRJ File	2/21/2002 12:03 AM
picture.shp	3 KB	AutoCAD Shape So...	2/21/2002 12:03 AM
picture.shx	1 KB	AutoCAD Compiled ...	2/21/2002 12:03 AM
proj2.apr	12 KB	APR File	2/21/2002 12:12 AM
track.csv	138 KB	Microsoft Excel Com...	2/20/2002 10:52 PM
track.dbf	474 KB	Database File	2/21/2002 12:03 AM
track.prj	1 KB	PRJ File	2/21/2002 12:03 AM
track.shp	49 KB	AutoCAD Shape So...	2/21/2002 12:03 AM
track.shx	15 KB	AutoCAD Compiled ...	2/21/2002 12:03 AM

152 object(s) (Disk free space: 1.53 GB) 21.4 MB Local intranet

GPS-Photo Link Software Operation

Example of Comma Delimited Text File

```
picture.csv - WordPad
File Edit View Insert Format Help

|-78.7916708,37.3785567,763.7,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:37:34,DCP_0003_022002_113734_tag.jpg,DCP_0003.JPG,695522.92,4139156.35,17 N
-78.7916493,37.3785567,764.0,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:37:45,DCP_0004_022002_113745_tag.jpg,DCP_0004.JPG,695524.82,4139156.40,17 N
-78.7916493,37.3785782,766.9,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:38:34,DCP_0005_022002_113834_tag.jpg,DCP_0005.JPG,695524.77,4139158.78,17 N
-78.7916493,37.3785782,768.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:39:08,DCP_0006_022002_113908_tag.jpg,DCP_0006.JPG,695524.77,4139158.78,17 N
-78.7916708,37.3785782,769.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:39:46,DCP_0007_022002_113946_tag.jpg,DCP_0007.JPG,695522.87,4139158.73,17 N
-78.7916708,37.3785782,768.7,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:40:25,DCP_0008_022002_114025_tag.jpg,DCP_0008.JPG,695522.87,4139158.73,17 N
-78.7916622,37.3785782,771.6,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:40:41,DCP_0009_022002_114041_tag.jpg,DCP_0009.JPG,695523.63,4139158.75,17 N
-78.7954473,37.3775053,779.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:55:14,DCP_0010_022002_115514_tag.jpg,DCP_0010.JPG,695191.23
-78.7954259,37.3775053,782.6,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:55:46,DCP_0011_022002_115546_tag.jpg,DCP_0011.JPG,695193.13
-78.7951469,37.3774838,785.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:57:15,DCP_0012_022002_115715_tag.jpg,DCP_0012.JPG,695217.89,41
-78.7954903,37.3775482,790.5,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:58:21,DCP_0013_022002_115821_tag.jpg,DCP_0013.JPG,695193.13
-78.7960052,37.3777413,791.5,,0,WGS 84,"APCO","",,"",20-Feb-2002 16:59:27,DCP_0014_022002_115927_tag.jpg,DCP_0014.JPG,695193.13
-78.7961769,37.3779559,796.5,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:00:24,DCP_0015_022002_120024_tag.jpg,DCP_0015.JPG,695193.13
-78.7960052,37.3780417,798.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:00:59,DCP_0016_022002_120059_tag.jpg,DCP_0016.JPG,695193.13
-78.7959409,37.3781919,795.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:01:40,DCP_0017_022002_120140_tag.jpg,DCP_0017.JPG,695193.13
-78.7960052,37.3781919,800.0,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:02:30,DCP_0018_022002_120230_tag.jpg,DCP_0018.JPG,695193.13
-78.7961555,37.3779774,795.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:03:46,DCP_0019_022002_120346_tag.jpg,DCP_0019.JPG,695193.13
-78.7959623,37.3778272,792.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:04:50,DCP_0020_022002_120450_tag.jpg,DCP_0020.JPG,695193.13
-78.7962842,37.3775482,788.9,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:07:05,DCP_0021_022002_120705_tag.jpg,DCP_0021.JPG,695193.13
-78.7963271,37.3776126,794.9,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:08:12,DCP_0022_022002_120812_tag.jpg,DCP_0022.JPG,695193.13
-78.7963915,37.3777156,798.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:08:39,DCP_0023_022002_120839_tag.jpg,DCP_0023.JPG,695193.13
-78.7967992,37.3776555,788.9,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:09:25,DCP_0024_022002_120925_tag.jpg,DCP_0024.JPG,695193.13
-78.7966704,37.3777628,792.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:10:04,DCP_0025_022002_121004_tag.jpg,DCP_0025.JPG,695193.13
-78.7968421,37.3778272,796.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:10:37,DCP_0026_022002_121037_tag.jpg,DCP_0026.JPG,695193.13
-78.7969494,37.3779130,792.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:11:04,DCP_0027_022002_121104_tag.jpg,DCP_0027.JPG,695193.13
-78.7975502,37.3781705,787.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:12:10,DCP_0028_022002_121210_tag.jpg,DCP_0028.JPG,695003.30,41
-78.7974858,37.3781276,784.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:13:08,DCP_0029_022002_121308_tag.jpg,DCP_0029.JPG,695003.30,41
-78.7974000,37.3781061,785.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:13:36,DCP_0030_022002_121336_tag.jpg,DCP_0030.JPG,695003.30,41
-78.7968206,37.3780203,792.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 17:14:41,DCP_0031_022002_121441_tag.jpg,DCP_0031.JPG,695003.30,41
-78.7917481,37.3785152,776.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:08:37,DCP_0032_022002_140837_tag.jpg,DCP_0032.JPG,695516.18,4139151.59,17 N
-78.7920570,37.3784280,790.5,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:19:26,DCP_0033_022002_141926_tag.jpg,DCP_0033.JPG,695516.18,4139151.59,17 N
-78.7923789,37.3787928,784.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:22:11,DCP_0034_022002_142211_tag.jpg,DCP_0034.JPG,695516.18,4139151.59,17 N
-78.7923789,37.3787928,784.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:23:18,DCP_0035_022002_142318_tag.jpg,DCP_0035.JPG,695516.18,4139151.59,17 N
-78.7932587,37.3777843,785.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:26:53,DCP_0036_022002_142653_tag.jpg,DCP_0036.JPG,695516.18,4139151.59,17 N
-78.7932758,37.3777843,782.9,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:27:20,DCP_0037_022002_142720_tag.jpg,DCP_0037.JPG,695382.80,41
-78.7935505,37.3778057,782.6,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:29:05,DCP_0038_022002_142905_tag.jpg,DCP_0038.JPG,695382.80,41
-78.7954473,37.3775053,794.6,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:34:24,DCP_0039_022002_143424_tag.jpg,DCP_0039.JPG,695147.11,4
-78.7959538,37.3772264,793.7,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:35:44,DCP_0040_022002_143544_tag.jpg,DCP_0040.JPG,695147.11,4
-78.7963271,37.3774838,796.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:37:51,DCP_0041_022002_143751_tag.jpg,DCP_0041.JPG,695147.11,4
-78.7958550,37.3784924,795.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:40:06,DCP_0042_022002_144006_tag.jpg,DCP_0042.JPG,695147.11,4
-78.7957692,37.3785353,800.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:40:56,DCP_0043_022002_144056_tag.jpg,DCP_0043.JPG,695147.11,4
-78.7969923,37.3774667,798.0,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:46:30,DCP_0044_022002_144630_tag.jpg,DCP_0044.JPG,695147.11,4
-78.7971854,37.3775911,798.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:47:37,DCP_0045_022002_144737_tag.jpg,DCP_0045.JPG,695037.10,4139037.79,1
-78.7971854,37.3772135,796.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:49:59,DCP_0046_022002_144959_tag.jpg,DCP_0046.JPG,695037.10,4139037.79,1
-78.7972326,37.3773165,801.5,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:51:27,DCP_0047_022002_145127_tag.jpg,DCP_0047.JPG,695037.10,4139037.79,1
-78.7970395,37.3772178,803.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:52:29,DCP_0048_022002_145229_tag.jpg,DCP_0048.JPG,695050.95
-78.7969923,37.3772478,806.6,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:53:25,DCP_0049_022002_145325_tag.jpg,DCP_0049.JPG,695050.95
-78.7969451,37.3770332,798.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:55:32,DCP_0050_022002_145532_tag.jpg,DCP_0050.JPG,695050.95
-78.7974000,37.3772049,801.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:58:05,DCP_0051_022002_145805_tag.jpg,DCP_0051.JPG,695050.95
-78.7973356,37.3770547,798.4,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:59:04,DCP_0052_022002_145904_tag.jpg,DCP_0052.JPG,695050.95
-78.7974000,37.3770332,796.8,,0,WGS 84,"APCO","",,"",20-Feb-2002 19:59:52,DCP_0053_022002_145952_tag.jpg,DCP_0053.JPG,695050.95
-78.7972713,37.3769689,795.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:00:46,DCP_0054_022002_150046_tag.jpg,DCP_0054.JPG,695050.95
-78.7972498,37.3767757,806.3,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:03:16,DCP_0055_022002_150316_tag.jpg,DCP_0055.JPG,695050.95
-78.7972498,37.3767757,801.2,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:03:47,DCP_0056_022002_150347_tag.jpg,DCP_0056.JPG,695050.95
-78.7973270,37.3768573,793.7,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:05:05,DCP_0057_022002_150505_tag.jpg,DCP_0057.JPG,695050.95
-78.7972927,37.3767757,806.3,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:06:53,DCP_0058_022002_150653_tag.jpg,DCP_0058.JPG,695050.95
-78.7972927,37.3767543,803.1,,0,WGS 84,"APCO","",,"",20-Feb-2002 20:07:44,DCP_0059_022002_150744_tag.jpg,DCP_0059.JPG,695050.95
```

Uploading Files to the Image Workflow Server

Two ways to get files on the Image Workflow Server

- 1) Upload the files to the Image Workflow Server
< <ftp://prism.den.nps.gov> >
- 2) Send CD's into the NPS GPS Support Facility and we will upload them for you. Be sure to put files into proper folders *before* cutting the CD.

NPS GPS Support Facility
Attn: Tim Smith
12795 W. Alameda Pkwy
Lakewood, CO. 80228



Uploading Files to the Image Workflow Server

Output Files

The screenshot shows a Windows Explorer window titled 'kjcaa04400883'. The address bar shows the path 'kjcaa04400883'. The left pane shows the 'Folders' list, and the right pane shows a list of files with columns for Name, Size, Type, and Modified. Red arrows point from labels on the left to specific files in the list:

- Original Image File** points to `DCP_0071.JPG`.
- Watermarked Image File with date and time stamp** points to `DCP_0071_022002_170650_tag.jpg`.
- Comma Delimited Text File of Photo Locations** points to `picture.csv`.
- Point Shapefile of Photo Locations** points to `picture.shp`.
- Point Shapefile of Tracklog** points to `track.shp`.

Name	Size	Type	Modified
DCP_0070_022002_170619_tag.jpg	201 KB	JPG File	2/21/2002 12:03 AM
DCP_0071.JPG	191 KB	JPG File	2/20/2002 6:06 PM
DCP_0071_022002_170650_tag.jpg	200 KB	JPG File	2/21/2002 12:03 AM
DCP_0072.JPG	152 KB	JPG File	2/20/2002 6:07 PM
DCP_0072_022002_170745_tag.jpg	161 KB	JPG File	2/21/2002 12:03 AM
DCP_0073.JPG	169 KB	JPG File	2/20/2002 6:07 PM
DCP_0073_022002_170819_tag.jpg	177 KB	JPG File	2/21/2002 12:03 AM
GPS-PHOTO LINK.ini	7 KB	Configuration Settings	2/21/2002 12:00 AM
picture.csv	13 KB	Microsoft Excel Com...	2/21/2002 12:03 AM
picture.dbf	32 KB	Database File	2/21/2002 12:03 AM
picture.prj	1 KB	PRJ File	2/21/2002 12:03 AM
picture.shp	3 KB	AutoCAD Shape So...	2/21/2002 12:03 AM
picture.shx	1 KB	AutoCAD Compiled ...	2/21/2002 12:03 AM
proj2.apr	12 KB	APR File	2/21/2002 12:12 AM
track.csv	138 KB	Microsoft Excel Com...	2/20/2002 10:52 PM
track.dbf	474 KB	Database File	2/21/2002 12:03 AM
track.prj	1 KB	PRJ File	2/21/2002 12:03 AM
track.shp	49 KB	AutoCAD Shape So...	2/21/2002 12:03 AM
track.shx	15 KB	AutoCAD Compiled ...	2/21/2002 12:03 AM

152 object(s) (Disk free space: 1.53 GB) 21.4 MB Local intranet

Uploading Files to the Image Workflow Server

Files to upload:

- 1) *.jpg files, original and watermarked – image files
- 2) *.csv files – comma delimited text files
- 3) *.shp files – ArcView shapefiles
- 4) *.dbf files – ArcView shapefiles
- 5) *.prj files – ArcView shapefiles
- 6) *.shx files – ArcView shapefiles

It is very important that all of these files make it to the Workflow server in order to have a complete record.

Uploading Files to the Image Workflow Server

Folder Tree on the Workflow Server

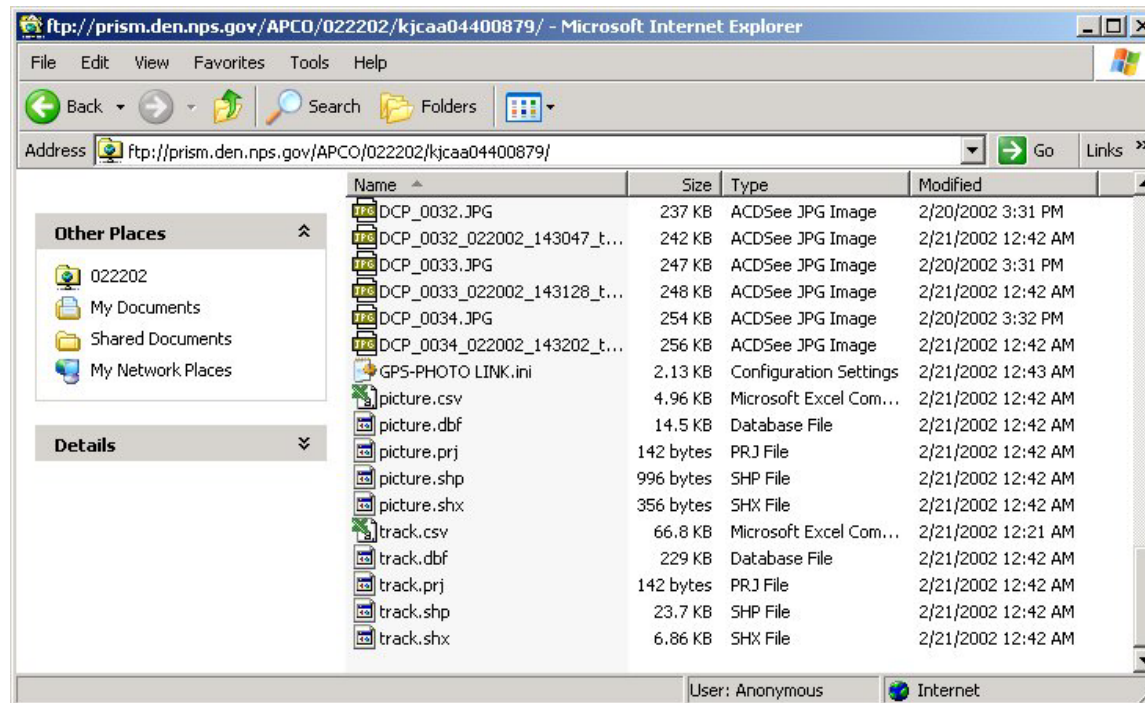
Folders should be created on the server as follows and files uploaded to the “Camera Serial Number” folder:

FTP://PRISM.DEN.NPS.GOV

Park Code (ex. APCO)

Date (ex. 022202)

Camera Serial Number (ex. kjcaa04400879)



If you have any questions, please, feel free to get in touch.

Check for updates to this training CD at:

< ftp://prism.den.nps.gov/updates/update_info.htm >



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National Park Service
Tim_Smith@nps.gov
(303)969-2086 or
(303)884-3692 cell

Much thanks to Kathy Commisso of Delaware Water Gap NRA for her copious amounts of help in production of this training presentation.

April 14, 2004